

# PATENT ABSTRACTS OF JAPAN

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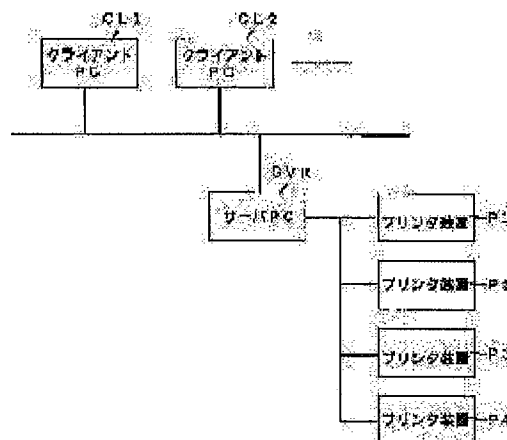
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## (54) PRINTING CONTROLLER AND PROGRAM RECORDING MEDIUM

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To effectively utilize each printer as a whole without causing any bias in the using situations of plural printers by allowing a user to select the printer suitable for printing contents to be requested as the output destination even without considering the function, performance, or state of each printer even under environment where old and new printers coexist or under environment where the same kind printers are prepared, and to drastically reduce the burden of a user by making it unnecessary to designate the printer to be used each time when the printing is requested.

**SOLUTION:** When the printing is requested from client computers CL1 and CL2, a server computer SVR examines the requested contents and the printing capability information in a printing condition information table for each printer, and selects the printer suitable for the printing contents to be request as the output destination from among plural printers, and instructs the requested printing to the selected printer.



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CLAIMS

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[Claim(s)]

[Claim 1]A print control unit which chooses a printer which suits a printing request content demanded this time as the output destination change from two or more printers characterized by comprising the following, and directs execution of printing according to the demand concerned to the selection printer.

A printing ability memory measure which memorizes printing ability information for two or more items which shows the printing ability for every printer.

A printer selecting means which chooses a printer which examines the request content and printing ability information within said printing ability memory measure for every printer, and suits the contents of the printing demand concerned when a printing demand is carried out as the output destination change.

A print control means which directs printing of the demand concerned to a printer with this selected printer selecting means.

[Claim 2]A model said printing ability memory measure for every different printer Inside of various kinds of special functions, Memorize function data peculiar to a model which show whether which function is carried by two or more items as printing ability information, and said printer selecting means, The print control unit according to claim 1 choosing \*\*\*\*\* with all special functions that examine the request content and printing ability information within said printing ability memory measure for every printer, and are needed for the printing demand concerned as the output destination change when a printing demand is carried out.

[Claim 3]Memorize said printing ability memory measure by two or more items as printing ability information, and performance information from which a model differs and which shows printing performance peculiar to a model for every printer said printer selecting means, Claim 1 choosing \*\*\*\*\* which examines the request content and printing ability information within said printing ability memory measure for every printer, and has the optimal printing performance for the contents of the printing demand concerned as the output destination change when a printing demand is carried out, or a print control unit given in 2.

[Claim 4]When a printing demand is carried out, establish an acquisition means which acquires the present situation [ exhausting ] which is exhausted by operation of a printer, and which was detected for every consumable goods from each printer, respectively, and said printing ability memory measure, Memorize the present situation [ exhausting ] of each consumable goods acquired from said acquisition means for every printer by two or more items as the present printing ability information in the printer, and said printer selecting means, Claims 1 thru/or 3 choosing a printer which examines the request content and printing ability information within said printing ability memory measure for every printer, and has the present situation [ exhausting ] in the optimal state for the contents of the printing demand concerned as the output destination change when a printing demand is carried out are the print control units of a statement either.

[Claim 5]A requirements memory measure which memorizes beforehand printing requirements which match with each item of said printing ability information, and are needed for the printing for every kind of application or document fixed, When a printing demand is carried out, by searching said requirements memory measure, Establish an acquisition means which acquires printing requirements for two or more items corresponding to a demanded kind of application or document, and said printer

selecting means, Printing requirements for two or more items acquired by said acquisition means and printing ability information for two or more items within said printing ability memory measure are examined for every printer, Claims 1 thru/or 4 choosing a printer with conditions which suit the contents of the printing demand concerned as the output destination change are the print control units of a statement either.

[Claim 6]In a case where individual designation of the capability conditions of a printer needed for the printing concerned by the user is carried out by two or more items as printing requirements of the printing concerned when performing a printing demand, When the printing demand of said printer selecting means is carried out, a user examines printing requirements for two or more items which carried out individual designation, and printing ability information for two or more items within said printing ability memory measure for every printer, Claims 1 thru/or 5 choosing a printer which suits the user individual designation conditions concerned as the output destination change are the print control units of a statement either.

[Claim 7]Printing requirements for two or more items which match with each item of said printing ability information, and are memorized by said requirements memory measure, When it is the condition information which considered and carried out weighting of the importance and a printing demand is carried out for every capability conditions of a printer needed for the printing, said printer selecting means, Examine printing requirements by which the printing demand was carried out, and printing ability information within said printing ability memory measure for every printer, and compute a value which seasoned printing ability information on each item with importance defined as the printing requirements concerned for every printer, and. The print control unit according to claim 1 to 6 choosing a printer with the highest value as the output destination change by comparing a value for all the items computed for every printer.

[Claim 8]A communication interface is carried out to a server client system, have two or more share printers in which share use is carried out by each client, and a server computer, Manage two or more share printers, and storage and file management of the printing ability information for two or more items which shows the printing ability is carried out for every printer, When a printing demand is carried out from a client computer, choose a printer which suits the printing demand concerned with reference to printing ability information for said every printer based on the request content as the output destination change, and. The print control unit according to claim 1 characterized by making it direct printing of the demand concerned to a selected printer.

[Claim 9]A recording medium which has a program code which a computer can read, comprising:  
When a printing demand is carried out, it is the request content.

A program code which a computer as which a printer which examines printing ability information for two or more items which shows the printing ability memorized for every printer in a printing ability memory measure, and suits the contents of the printing demand concerned is made to choose it as the output destination change can read.

A program code which a computer to which printing of the demand concerned is made to direct to a selected printer can read.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the print control unit which chooses the printer which suits the printing demand demanded this time as that output destination change from two or more printers, and its program recording medium.

[0002]

[Description of the Prior Art]He shares two or more sets of printers, and is trying to use in a company organization conventionally with two or more client computers by which network connection is carried out for the purpose of controlling superfluous plant-and-equipment investment, or aiming at effective use of a space etc. By the way, a printer evolves increasingly and is becoming possible in recent years also about high-definition full color printing which develops a silver halide film besides double-side printing, and was printed on photographic paper. In this case, as two or more sets of printers by which share use is carried out, whenever the newest model is provided from a maker, if all the printers are exchanged for it, can arrange each printer on a network with the newest, same model, but. In order that newly introducing the newest model each time may cause increase of plant-and-equipment investment, generally the old and new model of various makers is employed in the state where it was intermingled, and the user is made to do selected designation of the printer of the model for which it asks to a printing demand if needed.

[0003]

[Problem(s) to be Solved by the Invention]However, under the environment where the old and new model is intermingled as mentioned above. Since a large number [ the function which is not carried in an outdated model ] compared with the newest model in which printing performances, such as press speed and resolution, have a big difference, and various functions, such as full color printing and double-side printing, are substantial according to a maker or a model, The employment had to be arranged with the old machine kind of the lower one when those unific employment was assumed. When not aiming at unific employment, the result for which only the newest model is used intensively will be caused, use of an old machine kind changes suddenly, a bias arises in the operating condition, and it becomes impossible to utilize two or more shared printer devices effectively as the whole system. On the other hand under the environment where the old and new model is intermingled, for the user side, Since it is necessary to grasp a priori whether printing suitable for the request content is possible if what type of printer is specified out of many shared printer devices whenever it performs a printing demand, a big burden is applied to a user, and also a risk of mistaking the specification becomes so high. Even if it is under the environment which arranged with the same model not only the bottom of this \*\* of this and the environment where the old and new model is intermingled but all the printers, In that in which the drum has deteriorated since printing quality is greatly different according to the state of the consumable goods, for example, the frequency in use of the drum which has a limitation in an endurance life, Since it may become unsuitable for the image printing as which fine printing is required and mass printing may be impossible with the present residue of a paper or a toner, the user needed to choose the printer for performing fine printing and mass printing according to the present state of each printer. Even if the technical problem of this invention is under the environment arranged with the bottom of the environment where the old and new model is intermingled, or the same model, So that the printer which suits the contents by which the printing demand was carried out can be chosen as the output destination change and a bias may

not arise in the operating condition of two or more printers, even if a user is not conscious of the function of each printer, performance, and a state, Each printer is effectively utilizable as a whole, and it is not specifying the printer used for a printing demand each time, and enabling it to ease a user's burden substantially.

[0004]The means of this invention is as follows. The invention of the 1st statement of a claim chooses the printer which suits the printing request content demanded this time as the output destination change from two or more printers, The printing ability memory measure which is a print control unit which directs execution of printing according to the demand concerned to the selection printer, and memorizes the printing ability information for two or more items which shows the printing ability for every printer, The printer selecting means which chooses the printer which examines the request content and the printing ability information within said printing ability memory measure for every printer, and suits the contents of the printing demand concerned when a printing demand is carried out as the output destination change, The print control means which directs printing of the demand concerned to a printer with this selected printer selecting means is provided.

[0005]This invention may be as follows.

Said printing ability memory measure for every printer with which models differ (1) The inside of various kinds of special functions, Memorize the function data peculiar to a model which show whether which function is carried by two or more items as printing ability information, and said printer selecting means, When a printing demand is carried out, the request content and the printing ability information within said printing ability memory measure are examined for every printer, and \*\*\*\*\* with all the special functions needed for the printing demand concerned is chosen as the output destination change.

(2) Memorize said printing ability memory measure by two or more items as printing ability information, and the performance information from which a model differs and which shows printing performance peculiar to a model for every printer said printer selecting means, When a printing demand is carried out, the request content and the printing ability information within said printing ability memory measure are examined for every printer, and \*\*\*\*\* with the optimal printing performance for the contents of the printing demand concerned is chosen as the output destination change.

(3) When a printing demand is carried out, the acquisition means which acquires the present situation [ exhausting ] which is exhausted by operation of a printer, and which was detected for every consumable goods from each printer, respectively is established, Said printing ability memory measure memorizes the present situation [ exhausting ] of each consumable goods acquired from said acquisition means for every printer by two or more items as the present printing ability information in the printer, When a printing demand is carried out, said printer selecting means examines the request content and the printing ability information within said printing ability memory measure for every printer, and chooses the printer which has the present situation [ exhausting ] in the optimal state for the contents of the printing demand concerned as the output destination change.

(4) The requirements memory measure which memorizes beforehand the printing requirements which match with each item of said printing ability information, and are needed for the printing for every kind of application or document fixed, When a printing demand is carried out, by searching said requirements memory measure, Establish the acquisition means which acquires the printing requirements for two or more items corresponding to the demanded kind of application or document, and said printer selecting means, The printing requirements for two or more items acquired by said acquisition means and the printing ability information for two or more items within said printing ability memory measure are examined for every printer, and a printer with the conditions which suit the contents of the printing demand concerned is chosen as the output destination change.

(5) In the case where individual designation of the capability conditions of the printer needed for the printing concerned by the user is carried out by two or more items as printing requirements of the printing concerned when performing a printing demand, A user examines the printing requirements for two or more items which carried out individual designation, and the printing ability information for two or more items within said printing ability memory measure for every printer, and said printer selecting means chooses the printer which suits the user individual designation conditions concerned as the output destination change, when a printing demand is carried out.

(6) The printing requirements for two or more items which match with each item of said printing

ability information, and are memorized by said requirements memory measure, When it is the condition information which considered and carried out weighting of the importance and a printing demand is carried out for every capability conditions of the printer needed for the printing, said printer selecting means, Examine the printing requirements by which the printing demand was carried out, and the printing ability information within said printing ability memory measure for every printer, and compute the value which seasoned the printing ability information on each item with the importance defined as the printing requirements concerned for every printer, and. By comparing the value for all the items computed for every printer, a printer with the highest value is chosen as the output destination change.

(7) A communication interface is carried out to a server client system, have two or more share printers in which share use is carried out by each client, and a server computer, Manage two or more share printers, and storage and file management of the printing ability information for two or more items which shows the printing ability is carried out for every printer, When a printing demand is carried out from a client computer, the printer which suits the printing demand concerned with reference to the printing ability information for said every printer based on the request content is chosen as the output destination change, and printing of the demand concerned is directed to the selected printer. Therefore, in the invention according to claim 1, Even if it is under the environment arranged with the bottom of the environment where the old and new model is intermingled, or the same model, So that the printer which suits the contents by which the printing demand was carried out can be chosen as the output destination change and a bias may not arise in the operating condition of two or more printers, even if a user is not conscious of the function of each printer, performance, and a state, Each printer is effectively utilizable as a whole, and it is not necessary to specify the printer used for a printing demand each time, and a user's burden can be eased substantially.

[0006]

[Embodiment of the Invention] Hereafter, one embodiment of this invention is described with reference to drawing 1 – drawing 6. Drawing 1 is a block diagram showing the communication network system currently built in the company. This communication network system has server computer SVR, two or more client computer CL1 connected to it via the yard dedicated line and CL2 ..., and the composition of having two or more sets of the printers P1, P2, P3, and P4. A network system may be a broader-based communications system connected to other LAN not only via a local network system (LAN) but via the public telephone network etc. Each printer P1 by which the communication interface was carried out to this server client system, P2, P3, and P4 are shared by each client, it is an available shared printer and the old and new model of various makers is intermingled.

[0007] Server computer SVR functions as a printer server which manages the printer P1 and P2 ..., and also is what functions as client-server which manages client computer CL1 and CL2 ..., When client computer CL1 and CL2 ... perform a printing demand to server computer SVR, server computer SVR, The printer which suits the printing demand demanded this time is chosen as the output destination change from two or more sets of printers, and execution of printing according to the request content concerned is directed. Namely, the kind and user of the application by which the printing demand was carried out according to the contents of specification which carried out individual designation to a printing demand server computer SVR, He is trying to choose a printer with the optimal printing ability for the request content as the output destination change with reference to the printing-conditions information table mentioned later.

[0008] It is what illustrated the environment which did not unify the model of the printer P1, P2, P3, and P4, but was intermingled in the old and new model of various makers in this embodiment, For example, the printer P1 is constituted by the printer of a monochrome impact type, and the printer P2 is constituted by the color and the ink jet type printer. The printer P3 is constituted by the printer of a color and a heat sublimation type, and the printer P4 is constituted by the electro photographic printer of the color page type. And the special function by which printing performance is different according to the model, and also each printer P1, P2, P3, and P4 are carried in them is also different.

[0009] Drawing 2 is what showed the contents of the printing-conditions information table PT managed by the server computer SVR side, except for the part, registration of the establishment of

the contents was beforehand carried out at the time of new introduction of a printer, and changing registration of the setting detail is performed at the time of printer exchange. As for this printing-conditions information table PT, that whole is constituted by matrix form and the "printing-conditions item", the "application classification item", and the "printer kind another section eye" are assigned to that column direction, respectively. the capability for a "printing-conditions item" to show the various printing ability of a printer here -- something unusual -- it being an affair item and an "application classification item", It is a classification item which shows the kind of application by which a printing demand is carried out for every application, and a "printer kind another section eye" is a classification item which shows the kind of printer.

[0010]And in the example shown in drawing 2, the "printing-conditions item" is classification-ized according to a "function", "performance", and a "state" in the printing ability of the printer in the line writing direction. A "function" shows the special function carried according to the model of printer, matches a "functional" classification with various kinds of special functions, and is subdivided by two or more detailed items. That is, it is subdivided by the detailed item of "color printing", "tracing paper correspondence (impact type)", "double-side printing", a "manual paper feed", "cassette feeding", "sorting (stacker)", and "a stapler stop (finisher)." "Performance" shows the printing performance which is different according to the model of printer, matches a this "performance" classification with various kinds of printing performances, and is subdivided by two or more detailed items. That is, it is subdivided by the detailed item of "resolution (DPI/1000)", "press speed (ppm)/10", and "printing cost (page number which can be printed) / 10 yen."

[0011]The paper, ink in which a "state" is exhausted by operation of a printer, The present state (situation [ exhausting ]) detected for every durable consumable goods of the drum as the consumable goods or components needing periodic replacement of a toner, a printhead, and an ink jet nozzle is shown, and the this "state" classification is subdivided by two or more detailed items matched for every consumable goods. That is, it is subdivided by the detailed item of "A4 paper residual quantity (sheet) /100", "B4 paper residual quantity (sheet) /100", "A3 paper residual quantity (sheet) /100", "ink or toner residue (sheet) /100", and "endurance (remaining %)/100, such as a drum and a header." The situation [ exhausting ] which shows each "state" is computed by each printer according to the detection value detected for every item. The residue of a paper, ink, and a toner is the remaining number of sheets to standard data that can be printed, and the present to the life time at the time of a new article remains, and the endurance of components needing periodic replacement, such as a drum and a header, shows the usable rate.

[0012]In this example, "copy billing business", "desktop publishing", the "presentation", and the "photoprint" are set up as an "application classification item" defined as printing-conditions information table PT. In the line writing direction of printing-conditions information table PT, and "classification-ization, now it is each "printing-conditions item which is according to function", "performance", and a "state"", The application requirements which define the printing ability conditions needed for printing of the application are set to the decussion portion with each "application classification item of the column direction." namely, -- each -- -- the application requirements value which shows which condition items it matches with "each "printing-conditions item of function", "performance", and a "state"", and are needed for every application classification item" is set up, and this condition value is expressed with the importance over 100%.

[0013]The "monochrome impact type", the "color ink jet type", "the color and a heat sublimation type", and the "color page type" are set up as a "printer kind another section eye." And to every [ of each "printer ] classification item", match with "each "printing-conditions item of function", "performance", and a "state"", and printer ability information is set, The printer ability information matched with the "function" is information which shows whether the special function is carried, and if the value is "1" and it is those with functional, and "0", it expresses those without functional. The printer ability information matched with the "performance" is expressed with the rate over standard rating capacity. The printer ability information matched with the "state" is expressed with the rate over 100% computed according to the detection value detected for every item by each printer.

[0014]On the other hand, it matches with an "application classification item" and "the selection limit reference value (MIN)" and "the selection limit reference value (MAX)" are set to printing-conditions information table PT. When the kind and user of the application by which the printing demand was carried out choose the printer which had the optimal printing ability for it in the printing demand

based on the contents of specification which carried out individual designation as that output destination change, this "selection limit reference value", It is a criterion value by which a comparative examination is carried out to the adaptation value computed for every printer and every request content based on the setting detail of printing-conditions information table PT.

[0015]Although drawing 3 is what illustrated the contents of the comparison list in which the adaptation value computed for every printer and every request content according to the setting detail of printing-conditions information table PT in drawing 2 mentioned above is set and the details are mentioned later, If the adaptation value computed for every printer and every request content is above the "selection limit reference value" corresponding to it, the printer concerned will be determined as a selected candidate corresponding to the request content. In this case, although one printer is eventually narrowed down as an output destination change out of a selected candidate, that terminal decision is performed by carrying out the comparative examination of the "comprehensive goodness of fit" shown in drawing 3, it mentioned above — each — — in this embodiment apart from the application requirements set to every application classification item", In a printing demand, the user can carry out now input specification of two or more "user individual designation conditions 1" and "user individual designation condition 2" .... arbitrarily, as shown in drawing 3.

[0016]Drawing 4 is a block diagram showing the entire configuration of server computer SVR. CPU1 is a central processing unit which controls operation by this whole server computer SVR according to the operating system and the various application software in the memory storage 2. A database, a character font, etc. besides an operating system or various application software are stored, and the memory storage 2 has magnetic, optical, the recording medium 3 constituted by semiconductor memory etc., and its drive system. This recording medium 3 is a portability [, such as CD-ROM, a floppy disk, a RAM card, and a magnetic card, ] type medium with which it can equip enabling the free fixed medium or attachment and detachment of a hard disk etc. The program and data in this recording medium 3 are loaded to RAM(for example, SUTATIKU RAM) 4 by control of CPU1 if needed, or the data in RAM4 is saved to the recording medium 3. The recording medium may be formed in the external instrument side, such as a server, and CPU1 can also use it via a transmission medium, carrying out direct access of the program/the data in this recording medium.

[0017]CPU1 is stored in the recording medium 3 — the — incorporating all from other apparatus side via a transmission medium in part — the recording medium 3 — new registration — or additional registration can also be carried out. Namely, the cable-transmission way or electric waves which constitute a computer communication system, such as a communication line from other apparatus, and a cable, The transmission control part 5 can receive the program/data transmitted via radio transmission lines, such as microwave and infrared rays, and it can install in the recording medium 3. Storage and file management of a program/the data may be carried out by the external instrument side, such as a server, and CPU1 can also use it via a transmission medium, carrying out direct access of the program/the data by the side of an external instrument. On the other hand, the transmission control part 5, the input part 6, and the indicator 7 which are the input-and-output peripheral device are connected to CPU1 via the bus line, and CPU1 controls those operations according to an I/O program. The transmission control part 5 is a communication interface containing communication MODEM, an infrared ray module or an antenna, etc., for example.

[0018]Next, operation of server computer SVR in this one embodiment is explained with reference to the flow chart shown in drawing 5 and drawing 6. Here, the program for realizing each function described by these flow charts is stored in the recording medium 3 with the gestalt of the program code which can be read, and CPU1 performs operation according to this program code one by one. CPU1 can also perform operation according to the above-mentioned program code transmitted via a transmission medium one by one. That is, operation peculiar to this embodiment can also be performed using the program/data by which external supply was carried out via the transmission medium besides a recording medium.

[0019]Whenever drawing 5 has a printing demand from a client computer, it is the flow chart which showed the operation of server computer SVR by which an execution start is carried out. First, server computer SVR acquires application type information out of the printing request job demanded from the client, and (Step A1). Printing-conditions information table PT is searched based on this application type information, the "application classification item" applicable to it is specified, and the "application requirements" matched with it is acquired (Step A2). And 1 or two or more the "user



individual designation conditions" which the user specified arbitrarily are acquired out of the printing request job concerned (step A3).

[0020]Distinguish whether it is finishing [ the "function" for every printer, and "performance" information / acquisition ] (step A4), and if it is not ending with acquisition, Acquire them from each printer, and set the condition value according to it as printing-conditions information table PT, and (step A5). The present state (situation [ exhausting ]) detected from each printer for every consumable goods of a paper, ink/toner, a drum / printhead / ink jet nozzle is acquired, and the condition value according to it is set as printing-conditions information table PT (Step A6). Next, goodness-of-fit decision processing is performed to all the printers to the selection printer, choosing one of them one by one from various kinds of printers defined as printing-conditions information table PT (Step A7 – A9).

[0021]Drawing 6 is the flow chart which showed the goodness-of-fit decision processing to a selection printer. Now, with reference to the example shown in drawing 3, this goodness-of-fit decision processing shall be explained. In this case, "the case where 14 copies of pamphlet data which consists of 6 pages in A4 size created with desktop-publishing application are printed as at a low price as possible" is shown as an example of a printing request job. As here shown in drawing 3, when the two "user individual designation conditions 1" and the "user individual designation conditions 2" should be specified by the user, the requirements of this printing request job, It becomes the "application conditions" corresponding to "desktop publishing" in printing-conditions information table PT, and 3 of "the user individual designation conditions 1" and the "user individual designation conditions 2" conditions. First, one of the requirements of this printing request job of the beginning is chosen as a processing object (Step B1).

[0022]the "function", the "performance", and the "state" which are matched with this application since the "application requirements" corresponding to "desktop publishing" is chosen as a processing object now — those one detailed conditions are chosen from another "printing-conditions items" (step B-2). At first, the detailed conditions "color printing" which are a head item of a "function" are chosen. And the importance of these detailed conditions is read, and the multiplication of the capability value corresponding to a selection printer is carried out to this importance, and the value of that multiplication result is written in the correspondence position in the comparison list of drawing 3 (Step B3). In this case, since the "monochrome impact type" is chosen as a selection printer, and it is at first and "color printing" is chosen as detailed conditions which are a head item of a "function", The importance "5" of the detailed conditions and the multiplication result "0" with a printer capability value "0" are set to a comparison list (refer to drawing 3).

[0023]And it investigates whether there are other detailed conditions (step B4), and hereafter, above-mentioned operation is repeated until it finishes choosing all the detailed conditions. By this, the computed value according to detailed conditions of the application of "desktop-publishing" correspondence, and the printer of a "monochrome impact type", It becomes function item "0" – "0" performance-items "0" " $20 \times 0.4 = 8$ " " $25 \times 5.7 = 143$ " state-items "0" – "0." And the total value which totaled each computed value which moved to step B5 and was calculated according to detailed conditions as mentioned above, In this case, "151" is written in a comparison list as an adaptation value of the printer in the "monochrome impact type" to the application of "desktop publishing" (refer to drawing 3). And the "selection limit reference value" of correspondence in it is compared with this goodness of fit, Although goodness of fit investigates whether it is in a reference interval (step B6), as drawing 2 shows in this case, in order that a "selection limit reference value" may be "60" and goodness of fit "151" may fulfill that reference value, it judges with the printer concerned being a candidate printer which suits that condition.

[0024]Thus, when it was a candidate printer and judges with it being a judgment, it distinguishes whether other requirements are specified, but (Step B7) since "the user individual designation conditions 1" exists in this case, it returns to Step B1 and above-mentioned operation is repeated. In this case, the goodness of fit of "the user individual designation conditions 1" is set to "243", and in order to fulfill that reference value "90", it judges with the printer concerned suiting that condition. Since "the user individual designation conditions 2" exists, as a result of returning to Step B1 and repeating above-mentioned operation, the goodness of fit is asked for "20", but. Since it is below the reference value "84" (step B6), the selection printer concerned is judged to be an incongruent printer which does not suit the condition (Step B9). Thus, when at least one condition is distinguished

as it is incongruent, the conformity decision processing to the selection printer concerned is ended at the time, and after choosing the next printer (Step A7 of drawing 5), the conformity decision processing is started.

[0025]In this case, since the printer of a "color ink jet type" is chosen, the application requirements of "desktop publishing", and the "user individual designation conditions 1" — "the goodness of fit computed by every user individual designation condition 2", In order to be set to "61", "107", and "210" as shown in drawing 3, and to fulfill all the "selection limit reference values" corresponding to it, the printer concerned is judged as a conformity printer which suits a monograph affair. Then, it moves to Step B8 of drawing 6, the total value "378" which totaled the goodness of fit "61" computed for every monograph affair, "107", and "210" is calculated, and it sets in the comparison list by making it into a comprehensive adaptation value. Next, although the printer of "a color and a heat sublimation type" is chosen, since it is judged with it being incongruent by the first requirements, i.e., the application requirements of "desktop publishing", in this case, it shifts to the decision processing of the next printer at that time. Here, the printer of a "color page type" is chosen, and "190", "187", and "530" are computed as an adaptation value of each requirements, and "907" is computed as the comprehensive goodness of fit (Step B8 of drawing 6).

[0026]Thus, after the goodness-of-fit decision processing to all the printers finishes, it moves to Step A11 of drawing 5, and it is investigated whether the printer judged as a conformity candidate at least one exists. As a result, if one does not conform and the printer judged as a conformity candidate occurs although those without an applicable printer are notified to the client of a requiring agency (Step A14), "The comprehensive goodness of fit" of each of that printer is read, they are compared, and "comprehensive goodness of fit" chooses the printer of the largest value as an output destination change of this printing request job from those candidates (Step A11). And transmit a printing request job to this selection printer, and that printing is directed, and (Step A12) it waits for that printing completion and printed results, such as a selection printer name, are notified to a requiring agency (Step A13).

[0027]As mentioned above, this 1 embodiment \*\*\*\* examines that request content and the printing ability information in printing-conditions information table PT for every printer to a printing demand, Choose the printer which suits the contents of the printing demand concerned as the output destination change from two or more sets of printers, and. Since it was made to direct printing of the demand concerned to the selected printer, even if it is under the environment arranged with the bottom of the environment where the old and new model is intermingled, or the same model, So that the printer which suits the contents by which the printing demand was carried out can be chosen as the output destination change and a bias may not arise in the operating condition of two or more sets of printers, even if a user is not conscious of the function of each printer, performance, and a state, Each printer is effectively utilizable as a whole, and it is not necessary to specify the printer used for a printing demand each time, and it becomes possible to ease a user's burden substantially.

[0028]In this case, it corresponds to each printer at printing-conditions information table PT, a "function", "performance", and a "state", since another printing ability information was memorized, According to whether it requires, a printing demand on what kind of conditions A "function", "performance", Only a \*\* printer with the printing ability which suits all the "states" can be chosen, and also it becomes possible to choose the printer which fulfills 2 conditions of them, and the printer which fulfills only one condition. Only by specifying the kind of application as it, since the printing requirements needed for the printing for every kind of application were beforehand memorized to printing-conditions information table PT fixed, Since auto select of the printer corresponding to it is made, it is not necessary to specify printing requirements as a printing demand each time, and it becomes still more possible to ease a user's burden.

[0029]Since the printing requirements for which a user asks can also be arbitrarily specified with the printing requirements currently prepared fixed for every kind of such application if needed, the printer as a user's request can be chosen and it becomes what was rich in pliability. The printing requirements, as for, the printing requirements set up for every kind of application and a user did individual designation, Since it is the value which considered and carried out weighting of that importance and a printer can be chosen according to this importance for every capability conditions of the printer needed for that printing, Become possible to choose the optimal printer for the request content for every printing demand, and by considering it as the importance over 100%, when a user

specifies requirements, the specification becomes intelligible, and also fine specification is attained.

[0030]Although requirements were memorized to printing-conditions information table PT corresponding to the classification of application, it may be made to memorize requirements in one embodiment mentioned above corresponding to the data type according to the contents of a document. For example, since fine printing is required, it may be made for a document, an official document, etc. in which the picture is stuck into the document to memorize the printing requirements according to it. The requirements corresponding to the classification of application and the requirements of user individual designation are not dealt with with an identical level, but it may be made to give priority to the user individual designation conditions. In this case, what is necessary is to set up weighting according to that priority and just to season each requirements with that dignity. Of course, it can apply not only to a printer but to FAX equipment and a copying machine.

[0031]Although printing-conditions information table PT was managed by the server computer SVR side, it may be made to manage by each client side in a server client system. In this case, whenever a client computer has a printing demand from a user, after it chooses the optimal printer used by the printing concerned with reference to printing-conditions information table PT of self, it should just perform the printing demand which specified the printer being used to the server computer. Of course like a server client system, it can apply not only to when carrying out share use of the printer, but the data processing device of the stand-alone type to which two or more sets of printers are connected.

[0032]

[Effect of the Invention]Even if it is under the environment arranged with the bottom of the environment where the old and new model is intermingled, or the same model according to this invention, So that the printer which suits the contents by which the printing demand was carried out can be chosen as the output destination change and a bias may not arise in the operating condition of two or more printers, even if a user is not conscious of the function of each printer, performance, and a state, Each printer is effectively utilizable as a whole, and it is not necessary to specify the printer used for a printing demand each time, and a user's burden can be eased substantially.

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[Translation done.]

\* NOTICES \*

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]The block diagram showing the communication network system currently built in the company.

[Drawing 2]The figure showing the contents of the printing-conditions information table PT managed by the server computer SVR side.

[Drawing 3]The figure which illustrated the contents of the comparison list in which the adaptation value computed for every printer and every request content according to the setting detail of printing-conditions information table PT is set.

[Drawing 4]The block diagram showing the entire configuration of server computer SVR.

[Drawing 5]The flow chart which showed the operation of server computer SVR by which an execution start is carried out whenever there is a printing demand from a client computer.

[Drawing 6]The flow chart for explaining the goodness-of-fit decision processing to the selection printer shown by drawing 5 in full detail.

[Description of Notations]

SVR Server computer

P1, P2, P3, P4 printer

CL1 and CL2 Client computer

PT Printing-conditions information table

1 CPU

2 Memory storage

3 Recording medium

5 Transmission control part

6 Input part

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[Translation done.]

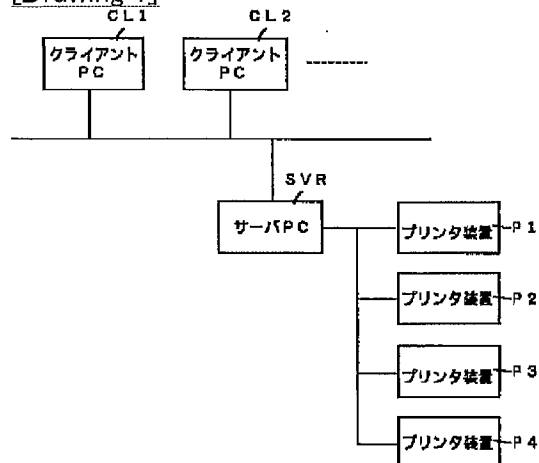
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## DRAWINGS

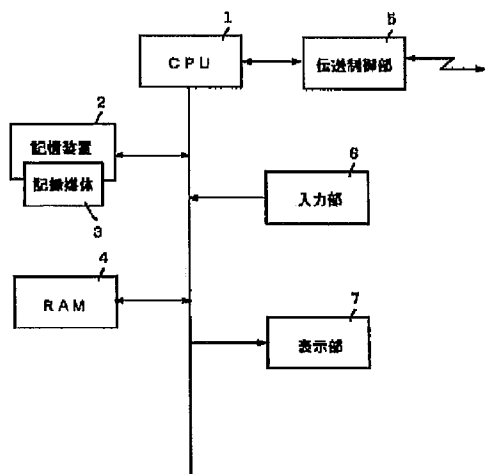
[Drawing 1]



[Drawing 2]

印刷条件情報テーブル		P.T							
印刷条件項目		アプリケーション種別項目 (100%に対する重要度)				プリンタ種別項目 (標準能力に対する割合)			
分類	詳細条件	a (モノクロ高速印刷)	b (ディスプレイグラフィック)	c (プレゼンテーション)	d (写真印刷)	e (ドットインパクト)	f (ドットインパクト)	g (ドットインパクト)	h (ドットインパクト)
機能	カラー印刷		5	100	90	0	1	1	1
	複写紙対応 (インパクト式)	50				1	0	0	0
	両面印刷	5				0	0	0	1
	手差し給紙	50				1	1	1	0
	カセット給紙	25				0	0	0	1
	ソート (スタッカー)	20				0	0	0	1
性能	ホチキス止め (フィニッシャ)					0	0	0	1
	解像度 (DPI) / 1000			10	0.3	1.2	1.8	0.8	
	印刷速度 (PPM) / 10	20			0.4	1.3	0.8	2	
	印刷コスト (印刷可能頁数 / 10円)	25			5.7	1.2	0.3	3.8	
状態	A 4 用紙残量 (枚) / 100				0.2	2.1	0.3	5.3	
	B 4 用紙残量 (枚) / 100				0	1.8	0	0	
	A 3 用紙残量 (枚) / 100				0	0	0	3.7	
	インク残量 (枚) / 1000				0.5	0.2	0.5	0.8	
	ドラム (残り %) / 1000				0.3	0.8	0.8	0.2	
	選択限度基準値 (MIN)	100	50	100	150				
選択限度基準値 (MAX)		-	-	-	-				

[Drawing 4]



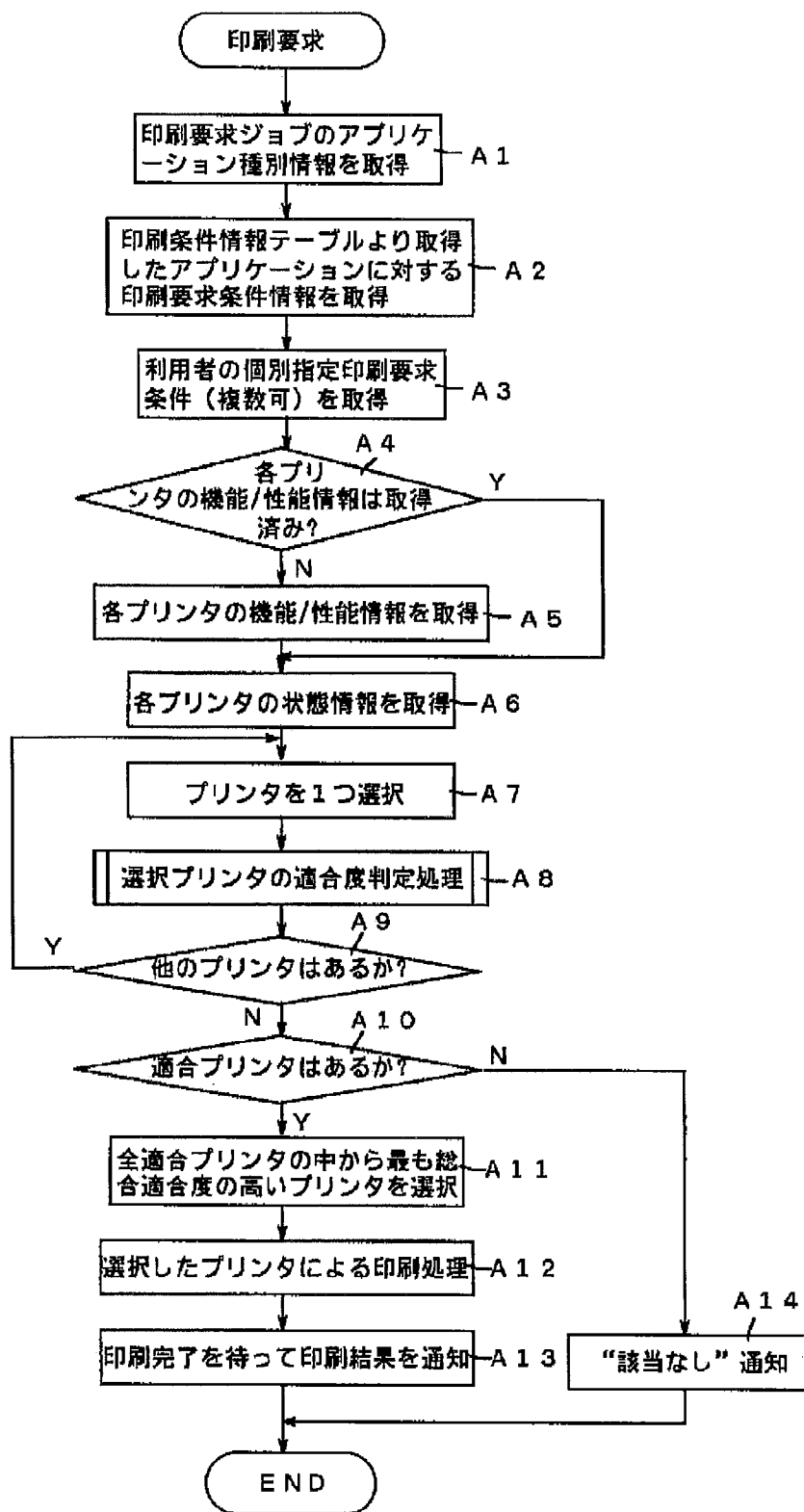
[Drawing 3]

ジョブの印刷要求条件 (複数セット)				各プリンタの適合度算出値																
				A				B				C				D				
詳細条件		アプリケーション(b)条件	利用者個別指定条件1	利用者個別指定条件2	プリンタ能力情報				プリンタ能力情報				プリンタ能力情報				プリンタ能力情報			
					適合度(アプリケーション)	適合度(利用者個別条件1)	適合度(利用者個別条件2)	適合度(アプリケーション)	適合度(利用者個別条件1)	適合度(利用者個別条件2)	適合度(アプリケーション)	適合度(利用者個別条件1)	適合度(利用者個別条件2)	適合度(アプリケーション)	適合度(利用者個別条件1)	適合度(利用者個別条件2)				
機能	カラー印刷	5			0	0	0	0	1	5	0	0	1	5	0	0	1	5	0	0
	複写紙対応				1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	両面印刷	5			0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0
	手差し給紙				1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
	カセット給紙	25			0	0	0	0	0	0	0	0	0	0	0	0	1	25	0	0
性能	ソート	20			0	0	0	0	0	0	0	0	0	0	0	0	1	20	0	0
	ホチキス止め		20		0	0	0	0	0	0	0	0	0	0	1	1	0	20	0	0
	解像度				0.3	0	0	0	1.2	0	0	0	1.8	0	0	0	0.8	0	0	0
	印刷速度	20			0.4	8	0	0	1.3	26	0	0	0.8	16	0	0	2	40	0	0
	印刷コスト	25	40		5.7	143	228	0	1.2	30	48	0	0.3	7.5	12	0	3.8	95	152	0
状態	A 4 用紙残量			100	0.2	0	0	20	2.1	0	0	210	0.3	0	0	30	5.3	0	0	930
	B 4 用紙残量				0	0	0	0	1.6	0	0	0	0	0	0	0	0	0	0	0
	A 3 用紙残量				0	0	0	0	0	0	0	0	0	0	0	3.7	0	0	0	
	インク残量		10		0.6	0	6	0	0.2	0	2	0	0.5	0	5	0	0.9	0	9	0
	ドラム		30		0.3	0	9	0	1.9	0	57	0	1.2	0	36	0	0.2	0	6	0
	基準値(MIN)	60	90	84	○ ○ ×				○ ○ ○				× × ×				○ ○ ○			
	基準値(MAX)																			
	適合度					151	243	20		61	107	210		29	53	30		190	187	530
総合適合度					×				378				×				907			

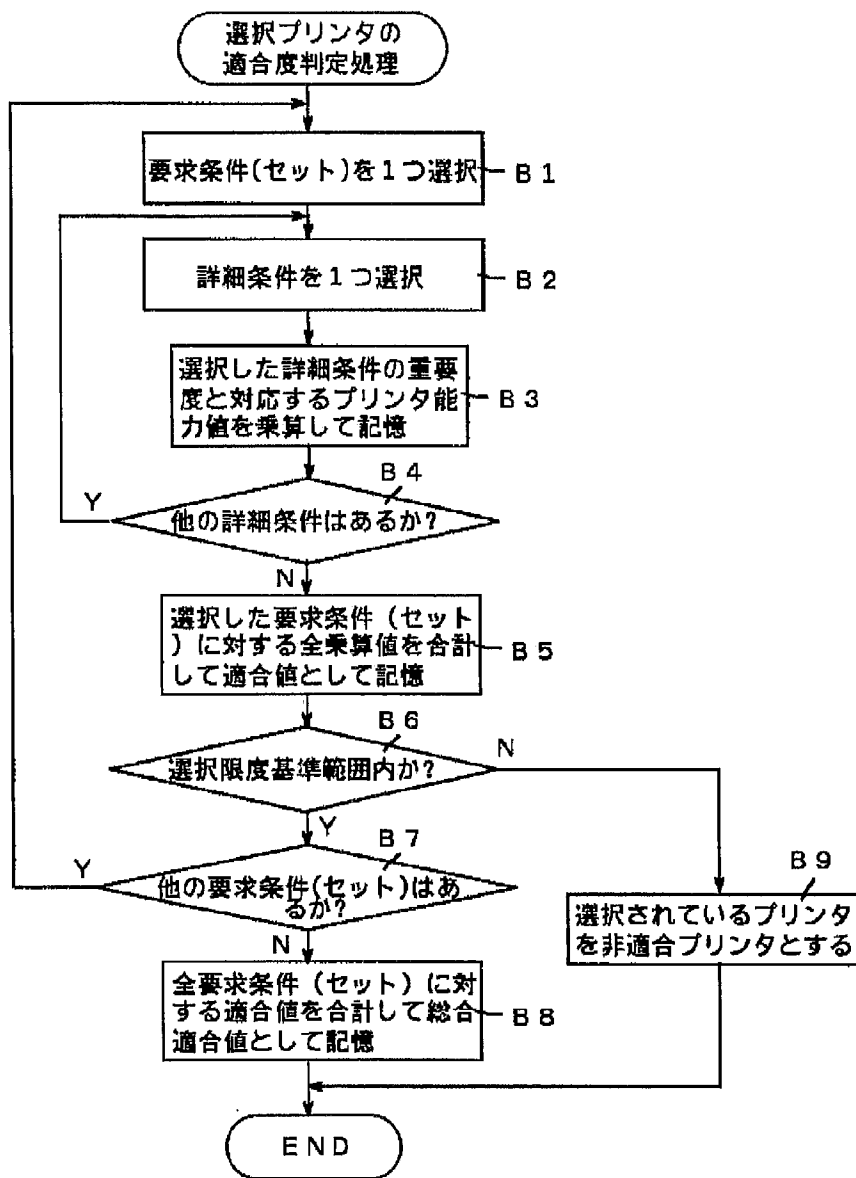
比較リスト

プリンタDが選択される

[Drawing 5]



[Drawing 6]



[Translation done.]